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Physical Observations of Comet b, 1881, made at Forest Lodge, Maresfield. By Captain W. Noble.

Observing the Comet from 11^h^ 30^m^ to 12^h^ 30^m^ L.M.T. on the night of June 24, with a power of 42 on my 4·2-inch Ross Equatoreal, the nucleus and its surroundings presented the aspect rather indicated than drawn with absolute fidelity in the accompanying sketch numbered 1. From the brilliant nucleus there extended towards the N. and E. a line of light into the tail. This seemingly expanded into a fan-shaped aigrette to the S. and E. of the nucleus. A small aigrette of light also issued from the nucleus to the south and west of it. I noted that the very smallest stars seen through the tail lost nothing of their brilliancy. I tried my star spectroscope upon the head of the Comet with the slit as much closed as its light would permit, but failed to get anything but a continuous spectrum.

Comet b 1881.

(Observed by Captain Noble at Forest Lodge, Maresfield.)

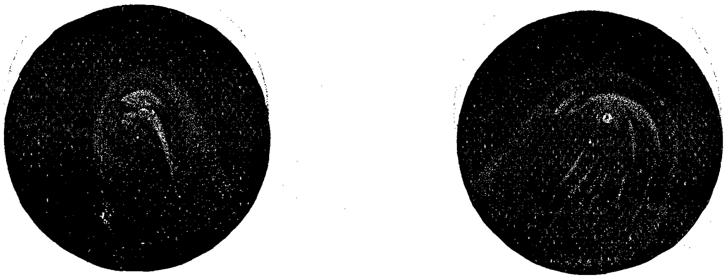

Fig. 1.

June 24.
12^{h} L.M.T.
(Power 42.)

Fig. 2.

June 25.
9^{h} 35^{m} L.M.T.
(Power 42.)

On the succeeding night, that of June 25, a most remarkable change had taken place in the appendages of the nucleus. Instead of appearing with any jets or line issuing from it, it was surrounded by two sectors of light placed unsymmetrically round it in a way which will be best understood from drawing No. 2. The nucleus itself presented the aspect of a star of the first magnitude, and seemed to be connected with the inner concave edge of the interior sector by a kind of radiating hazy luminosity. Viewing the Comet now at 10^{h} 5^{m} L.M.T. with the star spectroscope, I at once saw a gaseous spectrum superposed on a continuous one, the most prominent line being in the bluish-green. As the night darkened the gaseous spectrum became very pronounced, and the continuous one of the nucleus lay along it as a brilliant line of light. I further noted that the strange arrangement of sectors, which I have drawn, and which earlier seemed to bound the Comet's outline, as it were, were now at some distance inside the coma.

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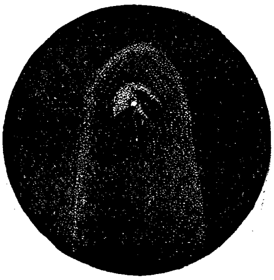
The indifferent weather prevented any further observations until June 28, when I caught the Comet at intervals from $11^{h}\ 15^{m}$ to $11^{h}\ 45^{m}$ through rifts in huge drifting cumulus clouds. The nucleus had certainly diminished, and the sectoral arrangement surrounding it had changed notably in form. It gave the idea of spouting from the nucleus, but it was very fuzzy and ill-defined, and sketching was very difficult.

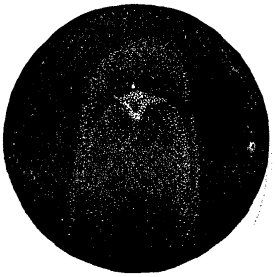
On the night of the 29th, which was clear, the nucleus had unmistakably diminished—or perhaps it would describe it better to say contracted, as it was decidedly less planetary and more stellar in its aspect than it was on the first night that I observed it. I noticed too (as I did on the previous night) that the nucleus was much farther within the coma than it was at the date of my earlier observation. In my sketch No. 4 it will be seen that the two sectors of light emanating from the nucleus—the preceding one being the brighter—give something of the effect of a sea-gull in flight; an 8–9th magnitude star, too, over which the nucleus passed almost centrally, will be seen just S. of it.

Fig. 3.



June 28.
$11^{h}\ 30^{m}$ L.M.T.
(Power 42.)

Fig. 4.



June 29.
$11^{h}\ 20^{m}$ L.M.T.
(Power 74.)

By June 30 the nucleus had shrunk very perceptibly indeed, and was more stellar than ever. With a power of 74 it looked like a 3rd magnitude star, from which pointed a hazy aigrette of light, bounded on the *s.f.* side by a dark sector. Faint traces existed of the line of light which was such a feature on the night of the 24th, but it was very short. One particularly noteworthy feature I have tried to indicate in sketch No. 5. It was this: that outside of the parabolic outline proper of the Comet was a ragged, hazy, ill-defined edge. I left home on the day after this last observation, and on my return during the second week in July the Comet had ceased to present any telescopic features of interest.

Physical Observations of Schäberle's Comet (*c*, 1881).

August 21, 9^{h} to $10^{h}\ 15^{m}$ L.M.T.—The aspect of the tail was uniformly nebulous, but it was straighter and better defined on

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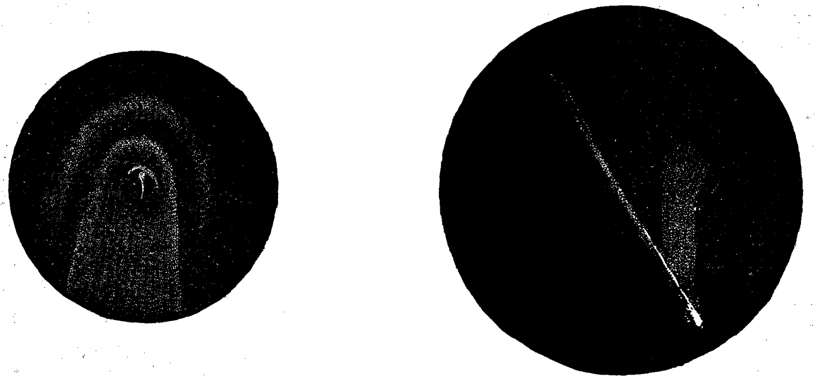
the following side. Exchanging the power of 42 for one of 115, I saw that the nucleus proper was an exceedingly minute point, a considerable distance within the head. Nothing whatever in the shape of a sector, jet, or aigrette of light was visible. Viewed in the spectroscope, a very bright and distinct spectrum of carbon was seen, the three bright lines being crossed by a horizontal continuous one, presumably arising from the minute nucleus.

Fig. 5. *Schäberle's Comet* (*c* 1881).



June 30.
$11^h\ 30^m$ L.M.T.
(Power 74.)

August 24. $9^h\ 30^m$ L.M.T.
As seen in a field-glass
magnifying 4 diameters.

My sketch of this Comet represents it as viewed in a field-glass, magnifying 4 diameters, on August 24, from 9^h to 10^h L.M.T. I drew it for the strange, faint second tail, or bifurcation of the first one. Viewed with a Nicol's prism in the Equatoreal, the whole coma exhibited distinct traces of polarisation.

Occultation of 13 *Capricorni by the Moon*, 1881, *October* 2.

The star disappeared instantaneously at the Moon's dark limb at $23^h\ 1^m\ 6^s{\cdot}3$ L.S.T. $=$ $10^h\ 14^m\ 3^s{\cdot}5$ L.M.T. Power, 154.

Discovery of Comet c, 1881. By Captain Irwin Maling, Colonial Secretary, Grenada, West Indies.

(*Communicated by the Secretaries.*)

I first observed a Comet of considerable magnitude on July 14 at 8 P.M. At that time it seemed to be about 20° from the horizon directly under the Pole star, and to be travelling a course from N.N.W. to S.W. It was passing through the constellation *Camelopardus*. The nucleus was bright, about the size of the most northerly star in *Camelopardus*. The nebulosity round the nucleus was very bright, and of a distinctly oval form; the tail brush-shaped, and pointing to the N.E. A bright star was visible south of the nucleus, and another at the lower extremity of the tail. On the 15th, at the same hour, I took advantage of a clear sky and night, and sketched the Comet,

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which, I am happy to say, proved to have then attained its greatest splendour. The 16th and 17th, it was too cloudy for observations. On the 18th I saw it dimly, but it had passed the star that was south of the nucleus on the 15th. I again saw the Comet on the 21st indistinctly. It had travelled westerly, and certainly with a northerly declination. On the 22nd, no observation (cloudy). The 23rd was specially favourable for observation, and I was enabled to confirm my impression of the 21st —that the Comet was travelling away from us in a northerly and westerly direction; and further that on the 18th it had attained the most southerly point of its orbit. 26th: Comet scarcely visible to the naked eye. With my glass I am able to observe that the Comet is continuing its northward and westward course. It being the rainy season here has prevented me from making more constant and accurate observations.

All these were ocular observations, only aided by a small field-glass, without any instruments or information as to any Comet being expected. Under these circumstances my conclusions may or may not be correct, and on this point I should be pleased to be informed by anyone who has had more favourable means and opportunities of observing this Comet.

Grenada:
1881, *July* 27.

Sextant Observations of Comet b, 1881.

Two series of distances of Comet *b*, 1881, from fixed stars, measured with the sextant, have been received from the Rev. S. S. O. Morris, H.M.S. *Garnet*, S.E. Coast of America, and from Lieut. Bertram Gwynne, H.M.S. *Garnet*, Sandy Point Road, Straits of Magellan, respectively. The former were made on May 30, 31, June 1, 2, 3, 4, 5, 6, 7, 8, 9, 13; and the latter on May 31, June 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13.